Proposed Remedy for comment #96 from George Z.

Comment (#96 clause 31.3 page 43 line 50)

Is Icable the current on one twisted pair, or is it the "Nominal Highest Current per pair" as in the header on Table 33-1?

Yair:

It is the “Nominal Highest Current per pair" as in the header on Table 33-1”.

For Type 1and Type 2: Icable is the maximum DC current per pair.

For Type 3 and Type 4 Icable is the maximum DC current per pair assuming 100% balanced system i.e. the total current is 2xIcable in a single cable.

When there is unbalance which is 99.999% of the cases, Icable which is the pairset current can get values higher than what specified i.e. Icon-2P-unb while the other pair will have lower current than Icable so always the total current will stay 2xIcable which is thermally what is important.

So the definition in Table 33-1 is correct with the addition of note 1 explaining the above in short.

Regarding Type 4: The Icable was calculated to cover the 100W max case (to include system power supply accuracy and peak power considerations) although formally Type 4 is about 90W min at the PSE and max 90W at the PD so in order not to block implementations that can squeeze more, we define the maximum possibility.

As a result, Note 1 can be further improved:

1 Icable is defined for 100% balanced operation where the total 4-pair current, Iport, is divided by half resulting with Icable. In Type 3 and Type 4 operation, the current per pairset may be impacted by pair-to-pair system resistance unbalance which may cause Icable on one of the pairs of the pairs with the same polarity to be higher per Icon-2P\_unb in Table 33-17 while the other pair will get to value lower than Icable resulting with total 2xIcable over the a single 4-pair cable. See 33.2.8.4.1.

In the discussion in this paragraph, it appears that Icable is the current per pair.

Yair: Correct (assuming 100% balanced system)

Everywhere else, it is the nominal highest current per pair (see, e.g., 33.1.3.1)

Yair: See above.

In other places it is unclear (e.g., Table 33-17, where it is part of a technical requirement)

Yair: In Table 33-17 it is clear that it is the current for unbalanced system calculated for 90W min PSE power as required.

**Proposed Remdy:**

Modify note 1 below Table 33-1 to:

1 Icable is defined for 100% balanced operation where the total 4-pair current, Iport, is divided by half resulting with Icable. In Type 3 and Type 4 operation, the current per pairset may be impacted by pair-to-pair system resistance unbalance which may cause Icable on one of the pairs of the pairs with the same polarity to be higher per Icon-2P\_unb in Table 33-17 while the other pair will get to value lower than Icable resulting with total 2xIcable over the a single 4-pair cable. See 33.2.8.4.1.